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L2	1073	(715/501.1).CCLS.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/08/10 17:07
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L4	685	significance with value.clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/10 17:08
L5	0	3 and 4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/10 17:09
L7	8	"iterative update".clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/10 17:10



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### 1 [Customer-focused design data in a large, multi-site organization](#)

Paula Curtis, Tammy Heiserman, David Jobusch, Mark Notess, Jayson Webb

 May 1999 **Proceedings of the SIGCHI conference on Human factors in computing systems: the CHI is the limit**

Full text available: pdf(1.24 MB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Qualitative user-centered design processes such as contextual inquiry can generate huge amounts of data to be organized, analyzed, and represented. When you add the goal of spreading the resultant understanding to the far reaches of a large, multi-site organization, many practical barriers emerge.

In this paper we describe experience creating and communicating representations of contextually derived user data in a large, multi-site product development organization. We describe ...

**Keywords:** affinity, contextual design, contextual inquiry, customer-focused design, distributed teams, organizational change, user data

### 2 [Concept mapping vs. web page hyperlinks as an information retrieval interface: preferences of postgraduate culturally diverse learners](#)

Melius Weideman, Wouter Kritzinga

 September 2003 **Proceedings of the 2003 annual research conference of the South African institute of computer scientists and information technologists on Enablement through technology SAICSIT '03**

Full text available: pdf(328.41 KB)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The principal objective of this research project was to determine if and to what extent cultural factors prescribe interface choices by learners. Concept mapping and standard hyperlinks were offered as choices for information retrieval interfaces. The methods employed were to identify a set of culturally divisive factors, and then to test two different interfaces with a group of culturally diverse, advanced learners. Some of the results had to be ignored due to small sample sizes. The remaining ...

**Keywords:** concept mapping, cultural diversity, experimentation, higher education, human factors, hyperlinks, information retrieval, measurement

### 3 [Posters: Affinity rank: a new scheme for efficient web search](#)

Y. Liu, B. Zhang, Z. Chen, M. R. Lyu, W. Ma

 May 2004 **Proceedings of the 13th international World Wide Web conference on**

**Alternate track papers & posters**

Full text available:  [pdf\(188.16 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Maximizing only the relevance between queries and documents will not satisfy users if they want the top search results to present a wide coverage of topics by a few representative documents. In this paper, we propose two new metrics to evaluate the performance of information retrieval: diversity, which measures the topic coverage of a group of documents, and information richness, which measures the amount of information contained in a document. Then we present a novel ranking scheme, Affinity Ra ...

**Keywords:** affinity rank, diversity, information richness, link analysis

#### 4 PicASHOW: pictorial authority search by hyperlinks on the web

January 2002 **ACM Transactions on Information Systems (TOIS)**, Volume 20 Issue 1

Full text available:  [pdf\(436.32 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#), [review](#)

We describe PicASHOW, a fully automated WWW image retrieval system that is based on several link-structure analyzing algorithms. Our basic premise is that a page  $p$  displays (or links to) an image when the author of  $p$  considers the image to be of value to the viewers of the page. We thus extend some well known link-based WWW *page retrieval* schemes to the context of image retrieval. PicASHOW's analysis of the link structure enables it to retrieve relevant images even when those ...

**Keywords:** Image retrieval, hubs and authorities, image hubs, link structure analysis

#### 5 Monitoring compliance of a software system with its high-level design models

Mohlalefi Sefika, Aamod Sane, Roy H. Campbell

May 1996 **Proceedings of the 18th international conference on Software engineering**

Full text available:  [pdf\(1.15 MB\)](#)  Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)  
[Publisher Site](#)

As a complex software system evolves, its implementation tends to diverge from the intended or documented design models. Such undesirable deviation makes the system hard to understand, modify and maintain. This paper presents a hybrid computer-assisted approach for confirming that the implementation of a system maintains its expected design models and rules. Our approach closely integrates logic-based static analysis and dynamic visualization, providing multiple code views and perspectives. We s ...

**Keywords:** /spl mu/Choices, abstraction levels, architectural models, coding guidelines, complex software system evolution, concrete rules, conformance testing, connectors, design patterns, design-implementation congruence, documented design models, dynamic visualization, high cohesion, high-level design models, hybrid computer-assisted approach, implementation divergence, logic-based static analysis, low coupling, monitoring, multimedia computing, multimedia operating system, multiple code view, operating systems (computers), software engineering, software system compliance monitoring, subjective design principles

#### 6 Knowledge encapsulation for focused search from pervasive devices

Yariv Aridor, David Carmel, Yoelle S. Maarek, Aya Soffer, Ronny Lempel

January 2002 **ACM Transactions on Information Systems (TOIS)**, Volume 20 Issue 1

Full text available:  [pdf\(2.43 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Mobile knowledge seekers often need access to information on the Web during a meeting or on the road, while away from their desktop. A common practice today is to use pervasive devices such as Personal Digital Assistants or mobile phones. However, these devices have inherent constraints (e.g., slow communication, form factor) which often make information


discovery tasks impractical. In this paper, we present a new focused-search approach specifically oriented for the mode of work and the constraint ...

**Keywords:** Focused searches, disconnected search, knowledge agents, pervasive devices

7 Technical session 15: WWW image retrieval: Hierarchical clustering of WWW image search results using visual, textual and link information

Deng Cai, Xiaofei He, Zhiwei Li, Wei-Ying Ma, Ji-Rong Wen

October 2004 **Proceedings of the 12th annual ACM international conference on Multimedia**

Full text available:  pdf(1.15 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

We consider the problem of clustering Web image search results. Generally, the image search results returned by an image search engine contain multiple topics. Organizing the results into different semantic clusters facilitates users' browsing. In this paper, we propose a hierarchical clustering method using visual, textual and link analysis. By using a vision-based page segmentation algorithm, a web page is partitioned into blocks, and the textual and link information of an image can be accu ...

**Keywords:** graph model, image clustering, link analysis, search result organization, spectral analysis, vision based page segmentation, web image search

8 Web structure: Block-level link analysis

Deng Cai, Xiaofei He, Ji-Rong Wen, Wei-Ying Ma

July 2004 **Proceedings of the 27th annual international conference on Research and development in information retrieval**

Full text available:  pdf(604.09 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)


Link Analysis has shown great potential in improving the performance of web search. PageRank and HITS are two of the most popular algorithms. Most of the existing link analysis algorithms treat a web page as a single node in the web graph. However, in most cases, a web page contains multiple semantics and hence the web page might not be considered as the atomic node. In this paper, the web page is partitioned into blocks using the vision-based page segmentation algorithm. By extracting the page- ...

**Keywords:** Vision-based page segmentation, graph model, link analysis, web information retrieval

9 Insight lab: an immersive team environment linking paper, displays, and data

Beth M. Lange, Mark A. Jones, James L. Meyers

January 1998 **Proceedings of the SIGCHI conference on Human factors in computing systems**

Full text available:  pdf(1.02 MB)


Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)

**Keywords:** analysis methods, barcode technology, collaboration, digital documents, group memory, hybrid paper electronic interfaces, interaction design, video analysis

10 Poster papers: Collaborative crawling: mining user experiences for topical resource discovery

Charu C. Aggarwal

July 2002 **Proceedings of the eighth ACM SIGKDD international conference on Knowledge discovery and data mining**

Full text available:  pdf(691.02 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The rapid growth of the world wide web had made the problem of topic specific resource discovery an important one in recent years. In this problem, it is desired to find web pages which satisfy a predicate specified by the user. Such a predicate could be a keyword query, a topical query, or some arbitrary constraint. Several techniques such as focussed crawling and intelligent crawling have recently been proposed for topic specific resource discovery. All these crawlers are *linkage based*, ...

11 WWW mining: Graph-based ranking algorithms for e-mail expertise analysis

Byron Dom, Iris Eiron, Alex Cozzi, Yi Zhang

June 2003 **Proceedings of the 8th ACM SIGMOD workshop on Research issues in data mining and knowledge discovery**

Full text available:  [pdf\(186.92 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper we study graph--based ranking measures for the purpose of using them to rank email correspondents according to their degree of expertise on subjects of interest. While this complete expertise analysis consists of several steps, in this paper we focus on the analysis of digraphs whose nodes correspond to correspondents (people), whose edges correspond to the existence of email correspondence between the people corresponding to the nodes they connect and whose edge directions point f ...

**Keywords:** digraph node ranking, expert finding, ordered list distance, social network analysis

12 Opportunistic exploration of large consumer product spaces

Doug Bryan, Anatole Gershman

November 1999 **Proceedings of the 1st ACM conference on Electronic commerce**


Full text available:  [pdf\(1.10 MB\)](#) Additional Information: [full citation](#), [references](#), [index terms](#)

**Keywords:** browsing, information retrieval, information visualization, online shopping, retail eCommerce, searching, visual metaphor, visual navigation

13 Architecture-oriented visualization

Mohlaefi Sefika, Aamod Sane, Roy H. Campbell

October 1996 **ACM SIGPLAN Notices , Proceedings of the 11th ACM SIGPLAN conference on Object-oriented programming, systems, languages, and applications**, Volume 31 Issue 10

Full text available:  [pdf\(2.46 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Tracking the changing dynamics of object-oriented frameworks[5], design patterns[7], architectural styles[8], and subsystems during the development and reuse cycle can aid producing complex systems. Unfortunately, current object-oriented programming tools are relatively oblivious to the rich architectural abstractions in a system. This paper shows that architecture-oriented visualization, the graphical presentation of system statics and dynamics in terms of its architectural abstractions, is high ...

14 Industrial and practical experience track paper session 1: A personalized search engine based on web-snippet hierarchical clustering

Paolo Ferragina, Antonio Gulli

May 2005 **Special interest tracks and posters of the 14th international conference on World Wide Web**

Full text available:  [pdf\(514.22 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


In this paper we propose a hierarchical clustering engine, called snakel, that is able to organize on-the-fly the search results drawn from 16 commodity search engines into a hierarchy of labeled folders. The hierarchy offers a complementary view to the flat-ranked

list of results returned by current search engines. Users can navigate through the hierarchy driven by their search needs. This is especially useful for informative, polysemous and poor queries. SnakeT is the first complete an ...

**Keywords:** information extraction, new search applications and interfaces, personalized web ranking, search engines, web snippets clustering

15 Link-based ranking 2: Adaptive ranking of web pages

Ah Chung Tsoi, Gianni Morini, Franco Scarselli, Markus Hagenbuchner, Marco Maggini  
May 2003 **Proceedings of the 12th international conference on World Wide Web**

Full text available:  pdf(1.48 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

In this paper, we consider the possibility of altering the PageRank of web pages; from an administrator's point of view, through the modification of the PageRank equation. It is shown that this problem can be solved using the traditional quadratic programming techniques. In addition, it is shown that the number of parameters can be reduced by clustering web pages together through simple clustering techniques. This problem can be formulated and solved using quadratic programming techniques. It is ...

**Keywords:** PageRank, adaptive PageRank determinations, learning PageRank, quadratic programming applications, search engine

16 The roles of digital libraries in teaching and learning

Gary Marchionini, Hermann Maurer  
April 1995 **Communications of the ACM**, Volume 38 Issue 4

Full text available:  pdf(247.49 KB)

Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#)

Libraries have long served crucial roles in learning. The first great library, in Alexandria 2,000 years ago, was really the first university. It consisted of a zoo and various cultural artifacts in addition to much of the ancient world's written knowledge and attracted scholars from around the Mediterranean, who lived and worked in a scholarly community for years at a time. Today, the rhetoric associated with the National/Global Information Infrastructure (N/GII) always includes examples o ...

17 Posters: Towards a flash search engine based on expressive semantics

Dawei Ding, Jun Yang, Qing Li, Liping Wang, Liu Wenying  
May 2004 **Proceedings of the 13th international World Wide Web conference on Alternate track papers & posters**

Full text available:  pdf(192.91 KB)


Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Flash, as a multimedia format, becomes more and more popular on the Web. However, previous works on Flash are totally based on low-level features, which make it impractical to build a content-based Flash search engine. To address this problem, our paper proposes expressive semantics for bridging the gap between low-level features and user queries. To smoothly incorporate expressive semantics into a search engine, an eigenvector-based model is devised to map a user query to expressive semantics w ...

**Keywords:** classification, eigenvector, expressive semantics, flash retrieval, search engine, web application

18 Automated techniques for managing collections: Machine learning for information architecture in a large governmental website

Miles Efron, Jonathan Elsas, Gary Marchionini, Junliang Zhang  
June 2004 **Proceedings of the 4th ACM/IEEE-CS joint conference on Digital libraries**

Full text available:  pdf(1.49 MB)

Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

This paper describes ongoing research into the application of machine learning techniques for improving access to governmental information in complex digital libraries. Under the auspices of the GovStat Project, our goal is to identify a small number of semantically valid concepts that adequately spans the intellectual domain of a collection. The goal of this discovery is twofold. First we desire a practical aid for information architects. Second, automatically derived document-concept relations ...

**Keywords:** information architecture, interface design, machine learning

19 Semantic querying: Algorithmic detection of semantic similarity

Ana G. Maguitman, Filippos Menczer, Heather Roinestad, Alessandro Vespignani

May 2005 **Proceedings of the 14th international conference on World Wide Web**

Full text available:  pdf(4.10 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)


Automatic extraction of semantic information from text and links in Web pages is key to improving the quality of search results. However, the assessment of automatic semantic measures is limited by the coverage of user studies, which do not scale with the size, heterogeneity, and growth of the Web. Here we propose to leverage human-generated metadata --- namely topical directories --- to measure semantic relationships among massive numbers of pairs of Web pages or topics. The Open Directory Proj ...

**Keywords:** Web mining, Web search, content and link similarity, ranking evaluation, semantic similarity

20 Research track posters: Automatic multimedia cross-modal correlation discovery

Jia-Yu Pan, Hyung-Jeong Yang, Christos Faloutsos, Pinar Duygulu

August 2004 **Proceedings of the 2004 ACM SIGKDD international conference on Knowledge discovery and data mining**

Full text available:  pdf(167.68 KB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Given an image (or video clip, or audio song), how do we automatically assign keywords to it? The general problem is to find correlations across the media in a collection of multimedia objects like video clips, with colors, and/or motion, and/or audio, and/or text scripts. We propose a novel, graph-based approach, "MMG", to discover such cross-modal correlations. Our "MMG" method requires no tuning, no clustering, no user-determined constants; it can be applied to *any* multimedia collection ...

**Keywords:** automatic image captioning, cross-modal correlation, graph-based model

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### 21 [Web-based simulation: revolution or evolution?](#)

 Ernest H. Page, Arnold Buss, Paul A. Fishwick, Kevin J. Healy, Richard E. Nance, Ray J. Paul  
 January 2000 **ACM Transactions on Modeling and Computer Simulation (TOMACS)**,  
 Volume 10 Issue 1

 Full text available: [pdf\(90.00 KB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [citations](#), [index terms](#), [review](#)

The nature of the emerging field of web-based simulation is examined in terms of its relationship to the fundamental aspects of simulation research and practice. The presentation, assuming a form of debate, is based on a panel session held at the first International Conference on Web-Based Modeling and Simulation, which was sponsored by the Society for Computer Simulation during 11-14 January 1998 in San Diego, California. While no clear "winner" is evident in this debate, the ...

**Keywords:** Java, digital objects, distributed modeling

### 22 [Publishing models for Internet commerce](#)

 Tim O'Reilly  
 June 1996 **Communications of the ACM**, Volume 39 Issue 6

 Full text available: [pdf\(1.78 MB\)](#)

 Additional Information: [full citation](#), [citations](#), [index terms](#)

### 23 [Designing sticky knowledge networks](#)

 Ashley A. Bush, Amrit Tiwana  
 May 2005 **Communications of the ACM**, Volume 48 Issue 5

 Full text available: [pdf\(232.69 KB\)](#)  
[html\(25.68 KB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Much of any organization's experience and expertise remains underused and underexploited simply because it resides not in databases, repositories, or manuals but in the minds of its employees. Attempting to harness such distributed expertise, organizations have begun implementing collaborative knowledge networks---peer-to-peer digital networks connecting individuals with relevant expertise to their peers who need it [10, 11]. Unfortunately, however, successful knowledge networks represent the oc ...

### 24 [Bioinformatics: BIOMIND-protein property prediction by property proximity profiles](#)

 Deendayal Dinakarpanthian, Vijay Kumar  
 March 2002 **Proceedings of the 2002 ACM symposium on Applied computing**

 Full text available: [pdf\(501.01 KB\)](#)

 Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



We present the infrastructure of a bioinformation system called BIOMIND, which exploits the close relationship between the *structural* and *functional* properties of proteins. The scheme presented here views proteins as composite entities with structural and functional properties, and searches are based on distances along each property axis. Explicitly, this allows one to frame complex queries using quantitative criteria that confer more discerning power than systems based on a text-m ...

**Keywords:** data mining, database, proteins, query

25 Information retrieval algorithms: a survey

Prabhakar Raghavan

January 1997 **Proceedings of the eighth annual ACM-SIAM symposium on Discrete algorithms**

Full text available:  pdf(908.76 KB) Additional Information: [full citation](#), [references](#), [citations](#), [index terms](#)



26 Design expo: Vista: interactive coffee-corner display

Marcin Wichary, Lucy Gunawan, Nele Van den Ende, Qarin Hjortzberg-Nordlund, Aga Matysiak, Ruud Janssen, Xu Sun

April 2005 **CHI '05 extended abstracts on Human factors in computing systems**

Full text available:  pdf(1.56 MB) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)



In the contemporary information-saturated world, there is a need for an easier, faster, and more social way to keep office workers updated and better aware of surrounding activities. Today's information management systems tend to consume time rather than simplify information sharing. The Vista system tries to solve this problem. It is designed to be used in places of social interaction, where it displays information about professional activities happening in the department. In this paper, the ori ...

**Keywords:** interaction design, interactive displays, office and workplace, public displays, social awareness, user-centered design, visual system design, walk up and use systems

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